

Spinal Problems in Young Children, Part II: 3-10 Years

By Peter Fysh, DC

In the second of this three part series on children's spinal problems, we will consider the problems of children in the pre-school and grade-school or primary school years, the 3 to 10 year age group. While the conditions listed in this group may apply generally to the 3 to 10 year age group, there may be some overlap with the infant or adolescent groups, i.e., some of these conditions may also occur in the earlier or later years.

As stated in the first part of this series, and worth repeating, the diagnosis and treatment of spinal problems in children is a specialized task and should be undertaken with great care to ensure that a serious problem is not masquerading as a relatively minor complaint. In this 3 to 10 years age group, the main change which occurs is our ability as doctors to communicate more effectively with the patient and the patient's increasing ability to identify the location, intensity and an associated activity or trauma which might have caused the problem.

Causes of Spinal Pain in the Age Group

Back and neck pain in this group may be associated with any of the following:

- Trauma -- from falls, motor vehicle accidents or child abuse
- Acquired torticollis
- Spondylolysis or spondylolisthesis
- Infections - associated with meningitis, vertebral osteomyelitis or diskitis
- Juvenile rheumatoid arthritis

The cause of spinal pain in this group therefore may include not only the ubiquitous vertebral subluxation, but also vertebral fracture or dislocation and diseases which directly attack the bone or joint structures.

Trauma -- Falls

With increasing mobility, growing children will encounter an increasing number of traumatic situations which may affect the spine and result in back or neck pain. At this stage of life, the spine is still undergoing secondary ossification, i.e., the vertebral structures are still comprised largely of cartilage which is being converted progressively to bone. Due to the presence of such an abundant mass of cartilage and to its relative flexibility, young children can withstand some of the traumas which may result in fractures in the ageing patient.

A further characteristic of the young spine is the comparative elasticity of the ligament structures which hold the spinal vertebrae together. While such increased elasticity will provide a child with increased ranges of motion, it may also be the cause of frequent subluxation and possible dislocation of the child's joints.

Motor Vehicle Accidents

Accidents frequently involve several members of the family, maybe on the way to or from school or a sporting event. It is important that every person involved in the accident, whether old or young, have a physical examination to check for the possible presence of spinal degeneration due to subtle soft tissue injuries which over a period of time destroy the alignment and biomechanics, particularly of the cervical spinal. All too often, the patient's first evaluation may be 6 to 12 months after the incident and be associated with recurrent headaches, frequently typical of such a prior injury pattern.

Child Abuse

Abuse may occasionally be suspected as a cause of a child's back or neck pain. This can be from an incident where a child has been reprimanded by being "kicked in the pants" or by being hit over the head. Such incidents may be the cause of frequent complaints of back and neck pain in children. If this behavior persists as a regular form of childhood chastisement, the simplest of long term effects may be recurrent headaches and the loss of normal spinal biomechanics resulting in long-term degenerative changes. More severe problems, such as fractures and joint dislocations may be the result of increasingly violent trauma inflicted upon a child by a parent or guardian. Occasionally an x-ray finding of an old healed fracture site which does not correlate with the history, and for which detailed questioning cannot uncover the cause, may be evidence of previous or ongoing child abuse.

Acquired Torticollis

A commonly encountered condition in young children is torticollis. Spasm of the sternocleidomastoid (SCM) muscle will cause the head to tilt to one side while the chin points in the opposite direction. The most common cause of this condition, now well recognized in all recent medical texts, is rotary subluxation of the upper two spinal vertebrae. It is important however, especially in the younger child to determine the onset of this condition. Congenital torticollis should be ruled-out by its having been present from birth. Both a congenital and a traumatic onset torticollis should be evaluated with an appropriate radiographic series.

Spondylolysis and Spondylolisthesis

The traumas of early childhood, and perhaps a family tendency to fractures, may predispose a young child to spondylolysis. This fracture of the pars interarticularis, most frequently of the 5th lumbar vertebra, usually occurs in the early years of life. In the pre-school years, it may be associated with a fall or with jumping from a height, such as was one case where the young child liked jumping from the roof of the garden shed. This eventually resulted in a traumatic fracture of the pars with associated lower back pain. Many cases of spondylolysis however, do not appear to be symptomatic. Perhaps this is because the child is too young when the problem occurs to communicate how they feel.

Spondylolisthesis -- or further slippage of the involved vertebra, does not always occur at the time of the initial injury. Slippage of the vertebra from its normal location may take place at any time during the growing years. Slippage is most likely however during a growth spurt such as that which occurs during adolescence. More will be said about this in the next issue, when we discuss adolescent lower back problems.

Infections of the Spine

Infections can be associated with meningitis, vertebral osteomyelitis or diskitis. A patient with back pain accompanied by fever must be considered to have spinal infection until proven otherwise.

Osteomyelitis -- is an infectious process which can involve the spine. Frequently occurring following a trauma to some part of the body, osteomyelitis of the spine usually presents with acute back pain. The onset of symptoms from osteomyelitis is usually some days after the initial trauma, which helps in differential diagnosis. Radiographic studies are usually unremarkable for the first 10 to 14 days after the onset of the complaint. Radionuclide bone scans however can detect osteomyelitis as early as the first day or two after

onset.

Meningitis -- or inflammation of the spinal meninges due to infection, usually with the staph aureus bacteria, is more common in the very young infant. In pre-school children subtle changes in alertness, low grade fever and a desire to lie motionless may be an early sign. Later, the characteristic signs of nuchal rigidity, extension of the head and neck (opisthotonus) and positive Brudzinski's or Kernig's signs may be present.

Diskitis -- infection of the intervertebral disk, occurs mainly in the lumbar spines of young children. Infants and young children with this condition may refuse to walk or stand, have a mild fever and present with localized back pain. Here also, early diagnosis should be made by bone scan as roentgenographic changes may not be present for several weeks.

Juvenile Rheumatoid Arthritis (JRA)

This type of arthritis has several modes of onset. The most common variety to affect the spine is the particular type of JRA identified as type II. In this condition school age boys, usually around eight years of age, are most commonly affected, initially in the hips, knees and ankles. Later involvement may affect the sacroiliac joints and the lumbar and thoracic vertebrae. The presenting complaint here is usually lower back pain with accompanying hip and thigh pain. A family history of ankylosing spondylitis may be helpful in diagnosing this condition, but is not pathognomonic. This problem may be the precursor to the more classic ankylosing spondylitis which presents some years later.

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